

What is claimed is:

1. A method for transmitting a datagram in an apparatus having point-to-point protocol sessions which transmits datagrams received from a physical layer of a communication network to a network layer, the method comprising the steps of:
  - a) establishing at least two PPP sessions;
  - b) classifying the datagrams received from a physical layer based on the PPP session and transmitting the datagram to a corresponding PPP session;
  - c) processing the datagram received by the PPP in the PPP session; and
  - d) selecting one of the processed datagrams and transmitting the selected datagram to the network layer.
- 15 2. The method as recited in claim 1, wherein the step c) includes the step of decapsulating the datagram received from the physical layer.
- 20 3. The method as recited in claim 2, wherein the step d) includes the steps of:
  - d1) comparing the decapsulated datagrams; and
  - d2) deleting the datagram having an error at comparing result.
- 25 4. A computer readable recording media storing instructions for executing a method for transmitting a datagram in an apparatus having point-to-point protocol sessions which transmits datagrams

received from a physical layer of a communication network to a network layer, the method comprising the steps of:

a) establishing at least two PPP sessions;

b) classifying the datagrams received from a physical layer

5 based on the PPP session and transmitting the datagram to a corresponding PPP session;

c) processing the datagram received by the PPP in the PPP session; and

d) selecting one of the processed datagrams and transmitting

10 the selected datagram to the network layer.

5. An apparatus for transmitting a datagram, the apparatus having point-to-point protocol (PPP) sessions which transmits datagrams received from a physical layer of a communication network 15 to a network layer, comprising:

PPP session means having a plurality of PPP sessions;

a first management plane located on an upper layer of the PPP sessions, for selecting a corresponding one of the datagrams received from the PPP sessions and transmitting the selected 20 datagram to the network layer; and

a second management plane located on an under layer of the PPP sessions, for classifying datagrams received from a physical layer and transmitting each of the datagrams to the PPP session corresponding to the datagram, respectively.

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6. The apparatus as recited in claim 5, wherein the PPP session means decapsulates the datagram received from the second management

plane.

7. The apparatus as recited in claim 6, wherein the first management plane compares decapsulized datagrams and delete the  
5 datagram having an error.

8. A multi connection method applied to an apparatus for multi connections in a point-to-point protocol based apparatus, the method comprising the steps of:

10 a) shifting a dead state to an establishment state based on a connection request from a user;

b) performing a link establishment by using a link control protocol at the establishment state, if the link establishment is success, shifting to an authentication state, if not, shifting to  
15 the dead state;

c) performing a transmission of an upper layer message based on a network control protocol at a network state, if the transmission is success, shifting to a termination state;

20 d) if a new connection request is received at the network state, driving sub-states, thereby performing a multi processing, so that one to multi (1:N) connection can be established; and

e) performing disconnections by a number of the multi connection at the termination state and shifting to the dead state.

25 9. The method as recited in claim 8, further comprising the step of f) performing an authentication to a connection establishment of the user, if the authentication is success,

shifting to the network state, and if not, shifting to the termination state.

10. The method as recited in claim 8, wherein in the step of  
5 d), the sub-states is driven based on a control signal from a time  
scheduler.

11. The method as recited in claim 8, wherein the step d) includes  
the steps of:

10 d1) if the new connection request is received at the network  
state, a new link establishment is performed by using the link control  
protocol at the sub establishment state;

15 d2) performing an authentication to the new connection request  
at a sub authentication state and shifting from the sub  
authentication state to the network state; and

d3) if a connection release request is received at the network  
state, releasing the connection at a sub termination state.

12. The method as recited in claim 9, wherein the step d) includes  
20 the steps of:

d1) if the new connection request is received at the network  
state, a new link establishment is performed by using the link control  
protocol at the sub establishment state; and

25 d2) if a connection release request is received at the network  
state, releasing the connection at a sub termination state.

13. A computer readable recording media storing instructions

for executing a method for a multi connection applied to an apparatus for multi connections by using a multi processing in a point-to-point protocol (PPP), the method comprising the steps of:

- a) shifting a dead state of the multi connection establishing apparatus to an establishment state based on a connection request from a user;
- b) performing a link establishment by using a link control protocol at the establishment state, if a link establishment is success, shifting to an authentication state, if not, shifting to the dead state;
- c) performing a transmission of an upper layer message based on a network control protocol at a network state, if the transmission is success, shifting to a termination state;
- d) if a new connection request is received at the network state, driving sub-states, thereby performing a multi processing, so that one to multi (1:N) connection can be established; and
- e) performing disconnections by a number of the multi connection at the termination state and shifting to the dead state.

20 14. A method for performing multi connections applied to an apparatus for multi connection by using a multi processing in a point-to-point protocol (PPP), the method comprising the steps of:

- a) shifting a dead state to an establishment state based on a connection request from a user;
- b) performing a link establishment by using a link control protocol at the establishment state, if a link establish is success, shifting to a network state, if not, shifting to the dead state;

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c) performing a transmission of an upper layer message based on a network control protocol at a network state, if the transmission is success, shifting to a termination state;

5 d) if a new connection request is received at the network state, shifting to the establishment state and establishing a new link based on a link control protocol, thereby performing a multi processing, so that one to multi (1:N) connection can be established; and

10 e) performing disconnections by a number of the multi connection at the termination state and shifting to the dead state.

15. The method as recited in claim 14, further comprising the step of:

15 f) performing an authentication to a connection establish of the user, if the authentication is success, shifting to the network state, and if not, shifting to the termination state.

20 16. The method as recited in claim 14, further comprising the step of g) shifting to the network state and transmitting the upper layer message based on a network control protocol, after the step d).

25 17. A computer readable recording media storing instructions for executing a method for performing multi connections applied to an apparatus for multi connection by using a multi processing in a point-to-point protocol (PPP), the method comprising the steps of:

- a) shifting a dead state to an establishment state based on a connection request from a user;
- b) performing a link establishment by using a link control protocol at the establishment state, if a link establish is success,
- 5 shifting to a network state, if not, shifting to the dead state;
- c) performing a transmission of an upper layer message based on a network control protocol at a network state, if the transmission is success, shifting to a termination state;
- d) if a new connection request is received at the network state,
- 10 shifting to the establishment state and establishing a new link based on a link control protocol, thereby performing a multi processing, so that one to multi (1:N) connection can be established; and
- e) performing disconnections by a number of the multi connection at the termination state and shifting to the dead state.
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